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Some Elementary Initial Conditions for Francom Adjacency

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We define the Euler-Riemann Summation, which defines the 'Mixing of the Count' in linking Arithmetic Progression to the multiplicative Factorial Function '!'.

Define $E_o=0$ as the singularity (interval), then for any integer n, we find for the Harmonic Form of Riemann's Zeta-Function (z=k=constant):

$$\zeta(z)=\Sigma(1/n\hat{\ }z)=1/1\hat{\ }k+1/2\hat{\ }k+1/3\hat{\ }k+1/4\hat{\ }k+...+1/n\hat{\ }k$$

This Sum diverges for [0<k<1], i.e. for k=1/2: {1+Sqrt(2)/2+Sqrt(3)/3+...+Sqrt(n)/n} increases without limit.

For k>1, we have convergence, however:
Formally, let: $\Sigma 1/n\hat{\ }p=1\hat{\ }{-p}+2\hat{\ }{-p}+3\hat{\ }{-p}+...$
For even terms $2.2\hat{\ }{-p} >= 2\hat{\ }{-p}+3\hat{\ }{-p}$ for a geometric series $1\hat{\ }{1-p}+2\hat{\ }{1-p}+4\hat{\ }{1-p}+...+(2\hat{\ }{n-1})\hat{\ }{1-p}$

This Geometric Progression sums to: $[1-(2\hat{\ }{1-p})\hat{\ }n]/[1-2\hat{\ }{1-p}]=1/[1-2\hat{\ }{1-p}]$
So for p=2, this limit maximises in 1/(1-1/2)=2 , and for p=3 it becomes 4/3 converging towards 1 for increasing p.

We consider the special case for p=1 applied to the Singularity Interval E_o.

Define: for a nth term (numerator): $T\hat{\ }k(E_n) = n\hat{\ }k.T\hat{\ }k(E_{n-1}) + [(n-1)!]\hat{\ }k$
for the nth sum per n (denominator $[n!]\hat{\ }k$): $S\hat{\ }k(E_n) = T\hat{\ }k(E_n)/(n!)\hat{\ }k$

{Here the suffices n,n-1 etc. denote subscript}.

$T\hat{\ }1(E_1)=1/1=1.0+0!=1=S\hat{\ }1(E_1)=1/1!=1$; $T\hat{\ }2(E_2)=2.T\hat{\ }1(E_1)+1!=2+1=3$ with $S\hat{\ }2(E_2)=T\hat{\ }2(E_2)/2!=3/2=1+1/2$;

$T\hat{\ }3(E_3)=3.T\hat{\ }2(E_2)+2!=9+2=11$ with $S\hat{\ }3(E_3)=T\hat{\ }3(E_3)/3!=11/6=1+1/2+1/3=1+5/6$ and so on.

Further Example: $T\hat{\ }1(4)=4.11+3!=50$; $S\hat{\ }1(4)=50/4!=25/12$ for the nesting: 4{3(2+1!)2!}3! with $[4!]\hat{\ }1=24$.

For 4 terms, the Euler-Riemann Summation so is: $S\hat{\ }1(4)=1+1/2+1/3+1/4=25/12=2+1/12$.

For 7 terms,
$S\hat{\ }1(7)=T\hat{\ }1(7)/7!=(7.T\hat{\ }1(6)+6!)/7!=13068/5040=363.36/(140.36)=2+83/140=1+1/2+1/3+1/4+1/5+1/6+1/7$.

Project the Numberline with the Positive Integers mapping the Factorial-Function and the Negative Integers remaining invariant in Feyman Summation T(n)=n(n+1)/2 as absolute value, mirroring the positive integers.

(n!)<---4...3...2...[E_o]...1...2...3---> (n); where Integer 1 maps 2! in suppression of -1=2* and in algoradius e_o=1.

Similarly, Integer 2 maps 3! in suppression of -2=3* and algoradius e_1=2=2e_o, etc. etc.

The singularity so mixes the interval [0!-1!]=[-1,0] with Functional-Riemann-Bound (FRB=-1/2) becoming 'real' in its mapping (FRB'=1/2) in [0,1] and the central limit or pole, about which the Zero's of the Riemann-Zeta-Function propagate.

The first annulus in the Riemann-Euler-Harmonic so phasemixes the numbers 2 and 1 and the nth number is mixed with (n+1) as crystallised in the Feynman-Path-Integral or T(n)=1 in n(n+1), as a summation for all possible particular histories in quantum mechanics.

This also maps the series: SE_{ps}=Fibonacci#1=0,1,1,2,3,5,8,.....for a nth Term: T_n=[]-Y^n - X^n[]/Sqrt(5), for absolute value []...[] and obtained say via MacLaurin-Expansion of the coefficients (Experience-Factors) in the power series:

$$f(x)=1+x+2x^2+3x^3+...= \Sigma T_n.x^{n-1}$$

Set x.f(x) + x^2.f(x) = f(x) -1, then by (a+b)(a-b) f(x)=a/(x-X) + b/(x-Y) for a=-b=1/(Y-X) and (Y-X)=-Sqrt(5).

SuperSEps=Fibonacci#2=2,1,3,4,7,11,18,29,.... for a nth Term: ST_n=[]-Y^2n - X^2n[]/[]-Y^n - X^n[]=[]T_{2n}/T_n[]

for n=1,2,3,...; $T_{(2n=0)}$=2 mapping $T_{(n=0)}$=0.

The combined SEps-SuperSEps (T-ST)-sequence of experience factors {from the triplet propagation of [OldState, Experience, NewState]} can then be written as:
{T_n,ST_n}={(S_o=0,ST_o=2=S_3); (S_1=1=ST_1=S_2); (S_2,S_4=3=ST_2); (S_3,ST_3=4); (S_4=ST_2,ST_4=7); (S_5,ST_5)..(S_n,ST_n)..}

{T_n,ST_n}={(0,2), (1,1), (1,3), (2,4), (3,7), (5,11),...} containing integerset: {0,1,2,3,4,5,7,8,11,13,18,21,29,....}

We now represent the mappings in matrix form denoted as F-M-C, where the 'well behaved' terms for the mapping (from {T_5,ST_5}) sets algorithmic C-Space and the preceding elements the initialisation for the former.

Note we define Cantorian Denumerability Aleph-Null in Cardinality Aleph-All in the form:
Aleph-Null: limit{n=>Infinity}[T(n)]=Infinity
Aleph-All: limit{n=>X}[T(n)]=1 and counting Infinities as mapped one-to-one onto the positive Integer set.

	<u>*SEps=Fibonacci#1*</u>	*maps*	<u>*SuperSEps=Fibonacci#2*</u>
	. . .		. . . .
	. . 0		. . . .
	0 0 0*		-4 7 3 n=-2=2i^2
FSpace	0* 0 1	n=Infinity via 0+0=Infinity=1*=0*=1	3 -4 -1 n=-1=i^2 [a+ib complex upwards]
MSpace	1 0* 1	n=0 via (1,1,1)	-1 3 2* n=0
	1 1 2	n=1 via (1,1,10=2*=0/0=1*)	2* -1 1 n=0
(Reflection-Interval)			
	2 1 3	n=2 well behaved	1 2* 3 n=0

CSpace 3	2	5	n=3	well behaved	3	1	4	n=1	well behaved
5	3	8	n=4	well behaved	4	3	7	n=2	
.	.	.	n=5	continue downwards	.	.	.	n=3	

The linearity of the generating triplet configurations is extended in a complexification into a 2D symmetry. SEps propagates the Experience Factors in an adjacent displacement of 1, in moving from one configuration state to the next - this is termed Francom Adjacency.

[0*,1,1,2,3,5,...] as OldStates transfigure in Experiences [0,0*,1,1,2,3,5,8,...] into NewStates [1,1,2,3,5,8,...].

This algorithmic configuration space is however broken in the mapping onto SuperSEps.
Here the matching 'good behaviour' of the n-count is delayed in a factor of 2 in a 'reflection interval'.

Algorithmic modelling for this Francom Adjacency must generate the mapping of SEps onto SuperSEps in an geometry of the pentagonal symmetries intrisic to the two series. Hence a synthesis between linear propagation about an internal spiralling form is necessitated. A longrange rotational- and a longrange translational order for the Experienc-Factors is indicated in the geometry of say Penrosian Tiling Patterns and the Schechtmanite Quasicrystals of empirical form (Mg$_{(32)}$[Al,Zn]$_{(49)}$).

The general form, (physically{ akin to the propagation of magnetic fields) is the reduction of physical parameters to a state of information transmission, say in the data transfer between two neighbouring cells in mitosis and neuronal-synaptic processing.

A general modality for the cosmogenetic reproduction on all levels must crystallise, should the matrices above become sufficiently deciphered from their algorithmic encoding.

Derivation of SuperSeps

The relative primeness of the Fibonacci Numbers allows a one-to-one mapping between the SEps-Set and other such sets derived from it.

A logical derived set of such a nature is the sequence: 2,1,3,4,7,11,18,29,....
All adjacent members of this set are relatively prime to each other.
7 is relatively prime to both 4 and 11 (no common divisors except 1) and 11 is relativelyprime to both 7 and 18.

We now tabulate the sums and differences in our nth-term definition for SEps, so recalling the propagation for the natural numbers in counter n:

n	T_n	(X)^n	(-Y)^n	{[]-Y[]^n + []X[]^n}	{[]-Y[]^n - []X[]^n}
0	0	1	+1	**+2**	**0**
1	1	0.6180339885	-1.618033989	+2.236067978	**+1**
2	1	0.3819660109	+2.618033989	**+3**	+2.236067978
3	2	0.2360679772	-4.236067979	+4.472135956	**+4**
4	3	0.1458980335	+6.854101970	**+7**	+6.708203937
5	5	0.0901699436	-11.09016995	+11.18033989	**+11**
6	8	0.0557280899	17.94427193	**+18**	+17.88854384

7	13	0.0344418537	-29.03444189	+29.06888374	**+29**
8	21	0.0212862362	+46.97871382	**+47**	+46.95742758
9	34	0.0131556175	-76.01315572	+76.02631134	**+76**
10	55	0.0081306187	+122.9918696	**+123**	+122.983739
...	..	....	....	....	....
20	6765	0.0000661070	+15126.99998	**+15127**	+15126.99991
...	....	....	....	....	....

We see that for increasing n, the absolute magnitude for Y converges to an integral value in the Sum {+}, but only for even n. For odd n, the difference Sum {-} gives a specific integer for specific n.

The product of the two sums is: {+}.{-} = []-Y[]^2n - []X[]^2n=Sqrt(5).T_{2n} .

The sum of the two sums is: {+}+{-}= 2[]-Y[]^n , with ST_n ={+}+{-} - T_n.Sqrt(5) = [](-Y)^n +(X)^n[]

Multiplying each term as: Sqrt(5).({+}+{-}), we can form the alternating series:

(0+2.Sqrt(5)), (5+1.Sqrt(5)), (5+3.Sqrt(5)), (10+4.Sqrt(5)), (15+7.Sqrt(5)), ...as the alternating form of SuperSEps, given in the term:

[5.T_n + Sqrt(5).T'_n],

But for even n, we have: T'_n ={+} and for odd n, we have T'_n ={-}; then by (a-b)(a+b)=a^2-b^2 :

ST_n.Sqrt(5).T_n={+}.{-}=Sqrt(5).T_{2n} & ST_n=T_{2n}/T_n = []-Y^2n - X^2n[]/[]-Y^n - X^n[] (quod erat demonstrandum).

The significance of this result is that ST_n, T_{2n} and T_n are all integers.
We so have a primary extension for SEps with elements 1, 2 and 3 duplicated and resulting in the mappings as previously specified.

The Null-Initialisation (OS_j, EX_j, NS_j) as the Fibonacci-Triplet (A_{n-1}, A_n, A_{n+1}) then reflects ST_n about n=0* to define the complex number set as negative ST_n's mapped in a 0=>1=>Infinity correspondence to T_n.

This is the mathematical mapping of Cantorian Enumerability as previously indicated.